

Appl. No. 10/670,634
Amdt. dated July 20, 2004
Reply to Official Notice of May 10, 2004

DOCKET NO. SC12856TP

Please enter the following amendments:

In the Claims:

1. (Currently Amended) A method of forming a semiconductor structure comprising:
providing a substrate;
forming a control electrode overlying said substrate, said control electrode
including a sidewall;
forming an insulating layer that is adjacent to said control electrode and overlying
said substrate;
forming a silicon germanium sidewall spacer around said sidewall of said control
electrode and in contact with said ~~insulating layer~~;
forming a current electrode diffusion region in said substrate substantially aligned
to said silicon germanium sidewall spacer;
exposing the semiconductor structure to a ~~gaseous~~ atomic or molecular fluorine
~~ambient~~ to substantially remove said silicon germanium sidewall spacer;
and
forming an extension region to said current electrode diffusion region in said
substrate, said extension region substantially aligned to said control
electrode.
2. (Original) The method of claim 1, further comprising implementing said insulating layer
as an oxide layer.

Claim 3 (Canceled)

Claim 4 (Canceled)

Claim 5 (Canceled)

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- 3 8. (Currently Amended) The method of claim 5 ³ 1, further comprising generating said atomic or molecular fluorine from a plasma.
- 4 7. (Original) The method of claim ~~6~~ ³, further comprising implementing said plasma from at least one of nitrogen trifluoride, xenon difluoride or molecular fluorine.
- 5 8. (Currently Amended) The method of claim 1, further comprising:
exposing the semiconductor structure to said ~~gaseous fluorine ambient~~ atomic or molecular fluorine to substantially remove said sidewall spacer without substantially modifying said insulating layer.
- 6 9. (Currently Amended) The method of claim 1, further comprising:
etching said sidewall spacer with said ~~gaseous fluorine ambient~~ atomic or molecular fluorine selective to said insulating layer.
- 7 10. (Currently Amended) The method of claim 9 ⁸ 1, further comprising:
etching said silicon germanium sidewall spacer with said gaseous atomic or molecular fluorine ~~ambient~~ selective to said insulating layer by a factor of at least fifty to one.
- 8 11. (Original) The method of claim 1, further comprising:
surrounding the semiconductor structure with a dielectric isolation region.
- 9 12. (Currently Amended) The method of claim ~~11~~ ⁸, further comprising:
exposing the semiconductor structure to said ~~gaseous~~ atomic or molecular fluorine ~~ambient~~ to substantially remove said silicon germanium sidewall spacer and to introduce fluorine into said dielectric isolation region.
- 10 13. (Original) The method of claim ~~11~~ ⁸, further comprising:
exposing said dielectric isolation region to a gas to improve insulating characteristics of said dielectric isolation region.

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14. (Currently Amended) A method of forming a semiconductor structure comprising:
- providing a substrate;
 - introducing a dielectric region within the substrate to laterally electrically isolate the semiconductor structure;
 - forming a thin control electrode oxide overlying the substrate;
 - forming a control electrode overlying said ~~substrate~~ thin control electrode oxide, said control electrode including a sidewall;
 - forming an insulating layer that is adjacent to said control electrode and overlying said substrate;
 - forming a silicon germanium sidewall spacer around said sidewall of said control electrode and in contact with said insulating layer;
 - forming a current electrode diffusion region in said substrate substantially aligned to said silicon germanium sidewall spacer;
 - exposing the semiconductor structure to a ~~gaseous fluorine ambient~~ atomic or molecular fluorine to substantially remove said silicon germanium sidewall spacer and to add fluorine to said dielectric region; and
 - forming an extension region to said current electrode diffusion region in said substrate, said extension region substantially aligned to said control electrode.

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15. (Original) The method of claim 14, further comprising implementing the dielectric region as an oxide layer.

Claim 16 (Canceled)

Claim 17 (Canceled)

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18. (Currently Amended) The method of claim ~~17~~ 14, further comprising generating said atomic or molecular fluorine from a plasma.

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19. (Original) The method of claim 18, further comprising implementing said plasma as at least one of nitrogen trifluoride, xenon difluoride or molecular fluorine.

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20. (Original) The method of claim 19, further comprising implementing said dielectric region as an oxide layer.

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21. (Currently Amended) A method of forming a semiconductor structure comprising:
providing at least two semiconductor structures, each of the at least two semiconductor structures having a silicon germanium element;
laterally isolating said at least two semiconductor structures with a dielectric region; and
~~exposing said at least two semiconductor structures including said dielectric region to a gaseous fluorine ambient~~ atomic fluorine or molecular fluorine to remove the silicon germanium element, the dielectric region having a resulting lower dielectric constant.

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22. (Currently Amended) The method of claim 21, wherein a first semiconductor structure and a second semiconductor structure of said at least two semiconductor structures are laterally adjacent transistors.

23. (Canceled)

24. (Canceled)

25. (Canceled)